Notice of Allowability	Application No.	Applicant(s)	
	10/642,600	BALACHANDRAN ET AL.	
	Examiner	Art Unit	
	Kamran Afshar, 571-272-7796	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *3/22/07 & 4/4/07*.

2. ☒ The allowed claim(s) is/are *1-2, 4-5, 8-11, 15, 17-18, 25, 27-28, and 30-34*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

George Eng
GEORGE ENG
SUPERVISORY PATENT EXAMINER

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Yacura, Gary D., Reg. No.: 35.416 and Mr. Aaron A. Mace on 3/22/07 & 3/27/07.

The application has been amended as follows:

In The Claims:

1. (Currently Amended) A method of tracking ~~a~~ at least one user in a wireless communication network supporting a broadcast-multicast service, comprising:

classifying groups of users into tracking areas at the network;

transmitting an overhead message including an indicator value to the at least one user of a group; ~~and~~

tracking movement of the at least one user of the group based on a tracking area registration update message received from the user that is enabled or disabled based on the indicator value; and

determining a change in tracking area for the at least one user based on at least an adding or dropping criterion, and wherein

the indicator value enables the tracking area registration update message if the at least one user is in a sector on a boundary between at least two tracking areas and the indicator value disables the tracking area registration update message if the at least one user is not in ~~a~~ said sector on the boundary.

2. (Currently Amended) The method of claim 1, wherein the classifying step further includes classifying non-overlapping sectors into broadcast-multicast service tracking areas, each non-overlapping sector including one or more multicast groups of users.

3. (Canceled)

4. (Currently Amended) The method of claim 1, wherein

each tracking area includes one or more groups of sectors, each sector in the one or more groups of sectors including one or more multicast groups of said users, and

the adding criteria and dropping criteria includes comparing pilot signal strengths of sectors to at least one threshold.

5. (Currently Amended) The method of claim 1, wherein the tracking step further includes:

said tracking the user based on information related to ~~a~~ said tracking area change received from the user.

6. – 7. (Cancelled)

8. (Currently Amended) The method of claim 1, wherein the tracking step further includes:

said tracking the user based on a registration message received from the user subsequent to a detection of ~~a~~ said tracking area change by the user.

9. (Currently Amended) The method of claim 1, wherein

non-overlapping tracking areas are defined and consist of one or more sectors in the network, and

the tracking step further includes:

the network transmitting information related to the tracking areas of current and neighboring sectors; and

the user responding to these transmission to enable tracking of the user by the network.

10. (Original) The method of claim 5, wherein the information related to tracking areas is included in system overhead transmitted to the one or more sectors.

11. (Currently Amended) A method by which ~~a~~ at least one user provides a tracking area registration update to a wireless network supporting a broadcast-multicast service, the network serving a plurality of tracking areas, each tracking area containing one or more non-overlapping sectors, comprising:

receiving an overhead message including an indicator value from a serving sector;

evaluating pilot strengths of M strongest said sectors against a given criteria to determine a change in tracking area after expiration of a given time interval;

enabling a tracking area registration update message based on the indicator value received in the overhead message; ~~and~~

sending ~~a~~ said tracking area registration update message to the network to update the location of the user based on a result of the evaluating step; and

determining a change in the tracking area for the at least one user based on at least an adding or dropping criterion, and

disabling the tracking area registration update message if the at least one user is not in said sector on a boundary between at least two of the tracking areas on the boundary or an uplink is overloaded.

12. – 14. (Cancelled)

15. (Previously Presented) The method of claim 11, wherein the evaluating pilot strengths step is based on the pilot strengths of the M strongest sectors exceeding a given threshold or falling below a given threshold for a given period of time.

16. (Cancelled)

17. (Currently Amended) A method of tracking ~~a~~ at least one user in a wireless communication network supporting a broadcast-multicast service, the network serving a plurality of tracking areas, each tracking area containing one or more non-overlapping sectors, each non-overlapping sector having one or more groups of users, comprising:

transmitting an indicator value in an overhead message for enabling or disabling tracking area updates from said users of the sector; ~~and~~

determining user location of said at least one user within one of the tracking areas based on a response from the at least one user to the indicator value; and

determining a change in the tracking area for the at least one user based on at least an adding or dropping criterion, and wherein

the transmitting step transmits an indicator value enabling registration update messages if the users are in ~~a~~ said sector on a boundary between at least two tracking areas and transmits an indicator value disabling the tracking area registration update message if the users are not in ~~a~~ said sector on the boundary or an uplink is overloaded.

18. (Currently Amended) The method of claim 17, wherein the determining step includes:

after expiration of a given time interval, the user evaluating pilot strengths of M strongest of said sectors against a given criteria to determine a change in the tracking area, and

the network receiving the response based on a result of the evaluation, the response embodied as a tracking area update registration message from the user.

19. – 24. (Cancelled)

25. (Currently Amended) In a wireless network supporting a broadcast-multicast service and serving a plurality of sectors, groups of sectors further classified by the network into a plurality of

tracking areas, each sector of the groups of sectors having one or more groups of users, a method of obtaining registration to track location of ~~a~~ at least one user in a tracking area, comprising:

transmitting an overhead message from said each sector to its corresponding said groups of users, the overhead message including an indicator value enabling or disabling a registration update message from the users; ~~and~~

receiving a registration from at least one user that is based on the user detection of the indicator value; and

determining a change in the tracking area for the at least one user based on at least an adding or dropping criterion, and wherein

the transmitting step transmits an indicator value enabling the registration update messages if the users are in ~~a~~ said sector on a boundary between at least two tracking areas and transmits an indicator value disabling the registration update message if the users are not in ~~a~~ said sector on the boundary or an uplink is overloaded.

26. (Cancelled)

27. (Currently Amended) A method of tracking ~~a~~ at least one user in a wireless communication network supporting a broadcast-multicast service, comprising:

classifying groups of users into tracking areas at the network;

transmitting an overhead message including an indicator value to at least one user of a group; ~~and~~

tracking movement of the at least one user of the group based on a tracking area registration update message received from the at least one user that is enabled or disabled based on the indicator value; and

determining a change in the tracking area for the at least one user based on at least an adding or dropping criterion, and wherein

the transmitting step transmits an indicator value enabling registration update messages if the users are in a sector on a boundary between at least two tracking areas and transmits an indicator value disabling the tracking area registration update message if the users are not in ~~a~~ said sector on the boundary or an uplink is overloaded~~the indicator value disables the tracking area registration update message if an uplink is overloaded~~.

28. (Currently Amended) The method of claim 27, wherein the classifying step further includes classifying non-overlapping sectors into broadcast-multicast service tracking areas, each said sectors ~~sector~~ including one or more multicast groups of said users.

29. (Cancelled)

30. (Currently Amended) The method of claim ~~29~~ 27, wherein

each said tracking area includes one or more groups of sectors, each said sector including one or more multicast groups of said users, and

the adding criteria and dropping criteria includes comparing pilot signal strengths of the sectors to at least one threshold.

31. (Currently Amended) The method of claim 27, wherein the tracking step further includes:

said tracking the user based on information related to ~~a~~ said tracking area change received from the user.

32. (Currently Amended) The method of claim 27, wherein the tracking step further includes:

said tracking the user based on a registration message received from the user subsequent to a detection of ~~a~~ said tracking area change by the user.

33. (Previously Presented) The method of claim 27, wherein

non-overlapping tracking areas are defined and consist of one or more sectors in the network, and

the tracking step further includes:

the network transmitting information related to the tracking areas of current and neighboring sectors; and

the user responding to these transmission to enable tracking of the user by the network.

34. (Currently Amended) The method of claim 31, wherein the information related to said tracking areas is included in system overhead transmitted to ~~the~~ one or more sectors.

Allowable Subject Matter

2. In view of amended claims as discussed above and further search, Claims 1-2, 4-5, 8-11, 15, 17-18, 25, 27-28, and 30-34 are allowed.

The following is an examiner's statement of reasons for allowance: 1-2, 4-5, 8-11, 15, 17-18, 25, 27-28, and 30-34.

With respect to claim 1, the prior art of record fails to disclose singly or in combination or render obvious that the method comprising: classifying groups of users into tracking areas at the network; transmitting an overhead message including an indicator value to the at least one user of a group; tracking movement of the at least one user of the group based on a tracking area registration update message received from the user that is enabled or disabled based on the indicator value; and determining a change in tracking area for the at least one user based on at least an adding or dropping criterion, and wherein the indicator value enables the tracking area registration update message if the at least one user is in a sector on a boundary between at least two tracking areas and the indicator value disables the tracking area registration update message if the at least one user is not in the sector on the boundary.

With respect to claim 11, the prior art of record fails to disclose singly or in combination or render obvious that the method comprising: receiving an overhead message including an indicator value from a serving sector; evaluating pilot strengths of M strongest the sectors against a given criteria to determine a change in tracking area after expiration of a given time interval; enabling a tracking area registration update message based on the indicator value received in the overhead message; sending the tracking area registration update message to the network to update the location of the user based on a result of the evaluating step; and determining a change in the tracking area for the at least one user based on at least an adding or dropping criterion, and disabling the tracking area registration update message if the at least one user is not in the sector on a boundary between at least two of the tracking areas on the boundary or an uplink is overloaded.

With respect to claim 17, the prior art of record fails to disclose singly or in combination or render obvious that the method comprising: transmitting an indicator value in an overhead message for enabling or disabling tracking area updates from the users of the sector; determining user location of the at least one user within one of the tracking areas based on a response from the at least one user to the indicator value; and determining a change in the tracking area for the at least one user based on at least an adding or dropping criterion, and wherein the transmitting step transmits an indicator value enabling registration update messages if the users are in the sector on a boundary between at least two tracking areas and transmits an indicator value disabling the tracking area registration update message if the users are not in the sector on the boundary or an uplink is overloaded.

With respect to claim 25, the prior art of record fails to disclose singly or in combination or render obvious that the method comprising: transmitting an overhead message from the each sector to its corresponding the groups of users, the overhead message including an indicator value enabling or disabling a registration update message from the users; receiving a registration from at least one user that is based on the user detection of the indicator value; and determining a change in the tracking area for the at least one user based on at least an adding or dropping

criterion, and wherein the transmitting step transmits an indicator value enabling the registration update messages if the users are in the sector on a boundary between at least two tracking areas and transmits an indicator value disabling the registration update message if the users are not in the sector on the boundary or an uplink is overloaded.

With respect to claim 27, the prior art of record fails to disclose singly or in combination or render obvious that the method comprising: classifying groups of users into tracking areas at the network; transmitting an overhead message including an indicator value to at least one user of a group; tracking movement of the at least one user of the group based on a tracking area registration update message received from the at least one user that is enabled or disabled based on the indicator value; and determining a change in the tracking area for the at least one user based on at least an adding or dropping criterion, and wherein the transmitting step transmits an indicator value enabling registration update messages if the users are in a sector on a boundary between at least two tracking areas and transmits an indicator value disabling the tracking area registration update message if the users are not in the sector on the boundary or an uplink is overloaded.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Benedyk (U.S. Pub. No.: 2001/0055380 A1).

b) Miernik (U.S. 7,155,215 B1).

c) Soliman (U.S. Pub. No.: 2003/0060201 A1).

d) Kim (U.S. Pub. No.: 2006/0109812 A1).

e) Rune (U.S. 6,181,9840 B1).

f) Lee ((U.S. Pub. No.: 2004/0043774 A1).

g) Corson (U.S. 7,069,000 B1).

h) Hunzinger (U.S. Pub. No.: 2002/0016173 A1).

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Kamran Afshar whose telephone number is (571) 272-7796. The examiner can be reached on Monday-Friday.

If attempts to reach the examiner by the telephone are unsuccessful, the examiner's supervisor, **Eng, George** can be reached @ (571) 272-3984. The fax number for the organization where this application or proceeding is assigned is **571-273-8300** for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kamran Afshar

GEORGE ENG
SUPERVISORY PATENT EXAMINER